

**Workshop on Current Trends in the Engineering Design
And Evaluation of Navigation Locks**

**U.S. Army Engineer Research and Development Center (ERDC)
27-30 March 2001
Vicksburg, MS**

**Mechanical/Electrical Group
Facilitator: Rick W. Schultz Louisville District**

<u>Topic</u>	<u>Facilitators or Presenters</u>	<u>Schedule</u>
(Wednesday, March 28th) Combined Session Mechanical and Electrical topics		
PLC Controls	Chuck Oliver (LRL), Andy Schimpf (MVS) (General Discussion)	0800 - 0900
Centralized versus individual power units to operate mechanical machinery.	Rick Schultz (LRL) (General Discussion)	0900 -0930
Break		0930 - 0945
Hydraulic systems (selection of pumps, filters, reservoirs, heaters, etc.)	Rick Schultz (LRL) (General Discussion)	0945 - 1015
Electro-mechanical geared drives	(General Discussion)	1015– 1045
Control room layout	(General Discussion)	1045 - 1100
Fire protection/water supply systems	(General Discussion)	1100 - 1130
Lunch		1130 - 1230
Protection of mechanical piping/electrical lines in trenches or galleries	Chuck Oliver/Richard Nichols (LRL) (General Discussion)	1230 - 1300
Cylinder position measuring devices.	Russ Witten (LRH) (General Discussion)	1300 - 1330
Periodic Inspections	(General Discussion)	1330 - 1400
Break		1400 - 1415
Reliability analysis and major rehabilitation	(General Discussion)	1415 - 1445
Mechanical and Electrical interface	(General discussion)	1445 - 1630

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(Thursday March 29th)
Mechanical Topics (Facilitator Rick Schultz)

<u>Topic</u>	<u>Facilitators or Presenters</u>	<u>Schedule</u>
Bubbler systems	John Behrens (MVR) (General Discussion)	0800 - 0830
Vertical Lift Gates	Russ Witten (LRH) (General Discussion)	0830 - 0900
Direct connected cylinders/sector gear designs	Rick Schultz (LRL), Russ Witten (LRH)	0900 - 0930
Break		0930 - 0945
Optimizing the location of direct connected cylinder connection/pivot points for miter gates.	Richard Nichols (LRL), Russ Witten (LRH) (General Discussion)	0945 - 1015
Shock absorbers in direct connected miter gate machines.	Russ Witten (LRH) (General Discussion)	1015 - 1030
Materials selection for various components, (i.e. bearings, pins, bolts, piping etc.)	Rick Schultz (LRL) (General Discussion)	1030 - 1045
Cable versus direct connected cylinders for culvert valves.	(General Discussion)	1045 - 1100
Miter gate latching devices	(General Discussion)	1100 - 1115
Sizing the miter gate operating equipment (oversizing) Based on TM.	Russ Witten (LRH) (General Discussion)	1115 - 1130
Lunch		1130 - 1230
Environmentally friendly hydraulic oils and lubricants	John Behrens (MVR) (General Discussion)	1230 - 1315
Use of accumulators	(General Discussion)	1315 - 1330
Review of various hydraulic schematics . for operation of direct connected miter gate machinery with pros & cons	Russ Witten (LRH) (General Discussion)	1330 - 1430
Visit various models at ERDC (WES)		1430 - 1630

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Electrical Topics (Electrical facilitators Brian Porter/Chuck Oliver)

<u>Topic</u>	<u>Facilitators or Presenters</u>	<u>Schedule</u>
Lock Automaton	Ron Gadowski (LRP)	0800 - 0900
Fiber optics	(General Discussion)	0900 - 0930
Break		0930 - 0945
CCTV systems	Chuck Oliver (LRL)	0945 - 1015
Fire alarm systems	(General Discussion)	1015 - 1045
Elevators and controls	Chuck Oliver (LRL)	1045 - 1130
Lunch		1130 - 1230
Emergency Power for locks	(General Discussion)	1230 - 1300
Lock miter gate/culvert valve interlocks	(General Discussion)	1300 - 1400
Lighting	(General Discussion)	1400 - 1430
Visit various models at WES		1430 - 1630